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OF THE

Public Utilities Law of Wisconsin

AND THE RESULTS OF THEIR OPERATION

JUN 13 1912

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JOHN H. ROEMER

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TRANS-MISSISSIPPI COMMERCIAL CONGRESS

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KANSAS CITY, MO., NOV. 16, 1911

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CERTAIN IMPORTANT PROVISIONS OF THE PUBLIC UTILITIES LAW OF WISCONSIN, AND THE RESULTS OF THEIR OPERATION.

INDETERMINATE PERMIT.

That public utilities are virtual monopolies is the principle upon which the Public Utilities Law of Wisconsin is based. The theory that free competition is essential to the public welfare was abandoned and that of regulated monopoly substituted. Whatever diversity of views may still exist as to the wisdom of this policy, it can not be successfully controverted that potential competition has ever been a feeble and inefficient means of enforcing either the common law or the contractual obligations which public service corporations owe the public in respect to charges and service, and that actual competition has almost universally been short-lived and inevitably resulted in economic waste and entailed an unnecessary burden upon the public, as well as financial loss on the investors in the securities of the competing corporations. It would therefore seem that any system of public supervision that may be devised, in order to be just and effective in its operation, should recognize the economic fact that public utilities are natural monopolies, and should protect them from ill-advised and ill-designed competition.

At the very foundation of the Wisconsin system lies a uniform indeterminate franchise, denominated "an indeterminate permit," which gives the corporation a legally protected monopoly. It can never be deprived of its property unless the municipality determines to acquire the same, and then just compensation must be paid therefor, which is fixed and determined by the Commission. Franchises of this character are regarded with favor by all who have given the best thought and consideration to the subject.

Dr. Wilcox, in his work on Municipal Franchises,[1] says:

"The best kind of franchise is one that is indeterminate as to time, and one that reserves to the city the right of revocation at any time upon condition that the city purchase the plant and property of the company at a reasonable valuation, not including any franchise value, but with a provision for a bonus over cost, in case where the purchase is made before the property has been fully developed as a paying enterprise."

When the law was enacted it provided that all future grants of franchises by municipalities should be indeterminate permits. As to existing franchises, it gave the corporations the privilege of surrendering them and receiving in lieu thereof indeterminate permits. In a recent case[2] the supreme court had under consideration this feature of the law, and discussing the reasons which led to its adoption, said:

"The confusion created during the years preceding the public utility law of 1907 by granting franchises in several different ways,—some directly by the state, some by cities as state agencies, some by the state in the main but with power to the various municipalities as state agencies to add supplementary features, fitting particular situations, some by the state without regard to local police regulations, and some likewise having such regard, either expressly or by necessary implication, some having contractual features creating doubt in regard to their constitutional status, and some having such features but without doubtful character, many of such matters being, in the ultimate, more or less detrimental to consumers, whether public or private, and proprietors as well,—in the whole, created a perplexing situation in respect to harmonious administration. The legislature sought to deal efficiently with this mixed situation, the growth of years, by taking over existing franchises with the consent of owners, compensating them for co-operating to that end by conferring in each case of surrender a new franchise to do the things privileged under the old one with conditions referable only to the law itself, and so providing that subsequent original franchises conferred in whole or in part through state agencies would be likewise referable.

"* * * Doubtless, we reiterate, it was thought that sound policy required old franchises with their multiplicity of differences to be brought under one system so that the things formerly privileged might continue to be so but solely under conditions and limitations referable to a single standard, to wit: the public utility law, with its administrative board to dominate the situa-

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[1] Vol. 1–215.

[2] *La Crosse v. La Crosse Gas & El. Co.* 1911, 145 Wis. 408.

tion as between the owners of privileges and the public, to the end that each might be coerced, if need be, to deal justly with the other, accomplishing an era of fair exchange of equivalents involving service being furnished customers of the best character and at the lowest price practicable and without discrimination, and rendition therefor of such just and reasonable compensation as under the circumstances of each situation would enable performance of the mutual obligations practicable."

During the four years immediately following the enactment, but ten per cent of the corporations availed themselves of the privilege of exchanging their franchises for indeterminate permits. This apparent reluctance to make the change, although contrary to the anticipation of the legislature which passed the law, was not due to any apprehension on the part of the managements that the indeterminate permits were less valuable to the corporations than their secondary franchises, but rather to a doubt as to the power of the corporations to surrender privileges which had been hypothecated to secure outsanding bond issues. Thus, most of the surrenders were made by corporations who were able to secure the consent of the bondholders or who were able to retire or refund their bond issues. It was very evident that many years would be required to carry out the purpose of the law respecting uniformity of franchises throughout the state, and, hence, the recent legislature, acting under the power reserved in the constitution to alter or repeal corporate franchises, and under the police power, amended every franchise, making it an indeterminate permit. So at present, assuming the validity of the act converting all franchises into indeterminate permits, there is uniformity in franchises throughout the state, and, in consequence, all public utilities are subject to all the provisions of the Utilities Law.

VALUATION.

Another important feature of the law is that requiring the Commission to value the property of every public utility devoted to the public service. This is essential in order to determine the capitalization upon which rates are to be estimated. Without such a basis the regulation of rates would be practically impossible. However, in view of the many theories advanced for determining capitalization no specific rule is prescribed by

the statute. The act merely commands the Commission to value "all of the property of every public utility actually used and useful for the convenience of the public," and to make a separate valuation of all the physical property of such utility so used and useful. Every element of value, both tangible and intangible, is to be considered in reaching a result, excepting only franchise values, which are necessarily excluded by the general policy of the law. The object to be attained is the fair value of the property as a going concern. This, in the contemplation of the statute, is the proper capitalization upon which returns must be allowed.

In this discussion it will not be possible to give more than a brief consideration to the method employed in making such valuation, which perhaps differs in some essential respects from that heretofore generally in vogue. The elements usually available for consideration are the original cost of construction, the amount expended in permanent improvements and extensions, the reproduction cost and the same less depreciation, and the going value. In arriving at a fair and equitable appraisement of the physical structure, the Commission has considered, as more or less controlling, the reproductive cost based on the average prices of material and labor for the five years immediately preceding the time of appraisement. Such basis eliminates the effect of sudden and marked fluctuations in market prices, often due to temporary causes, and experience has shown this to be the best means of arriving at fair averages. The results thus attained have been so obviously just and equitable that the municipalities and the utilities generally have acquiesced therein. Nevertheless, for the sake of comparison and illumination of the subject, the reproductive cost based on current prices is also considered. The Commission has never confined itself to any one basis to the exclusion of others in reaching a conclusion. Every factor bearing upon the subject is carefully weighed and such importance given to it as the situation in the light of all the circumstances demands. While a norm of universal application might be desirable, yet, from the very nature of the undertaking, such is impossible. In the last analysis, enlightened judgment and conscience must be applied to the facts in hand if a just determination is to result.

Going Value.

There is a tendency on the part of some to regard the reproductive cost less depreciation as the only proper basis of capitalization upon which returns should be computed. This, in most instances, would be so unfair that it could probably not be sustained if assailed upon constitutional grounds. Old enterprises, which have yielded large profits for many years, could not justly complain if their returns should be based upon the present fair value of their physical structure, but when the losses incurred in the developing period of the business of any public utility have not been requited, it would be doing grave injustice to the investors in such concern to so limit the returns upon the capital actually and prudently sunk in the enterprise under economical administration. We have taken the position, in certain cases, that the losses necessarily incurred in building up the business during its formative period are a legitimate charge against the public and should in such instances be considered in fixing rates. It is my personal opinion that unearned depreciation, unearned interest on the investment, and any operating charges that have not been paid out of operating revenues, from the inception of the enterprise until it reaches the point where the operating revenues are sufficient to pay fair returns on the legitimate investment, are generally as much a part of the value of the active property as interest, taxes, insurance, and other fixed charges incurred during the period of construction. The former may often be computed accurately from the records available and constitute the cost of establishing the business on a profitable basis. It is, in fact, the cost incurred in converting the property from a static state to a dynamic state, and forms the monetary measure of going value. Whether the full amount of such losses should be allowed in any given case, depends upon all the facts and circumstances surrounding the same.

It has been objected to this method of estimating the going value that the deficiency of revenue may be the result of imprudent management. As was stated in one case,[3]

"The company may have purchased a plant larger and more expensive than necessary; current rates of interest may have been abnormally high; many causes which have absolutely no

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[3] *Contra Costa Water Co. v. Oakland*, 1911, 113 Pac. 668, 676.

relation to the value of a company's business now, as a going concern, may have increased or diminished the deficiency in revenue. Furthermore, if it be conceded that early deficiency of revenue is the proper measure of value for the present going concern, then it follows that the greater the deficiency and the more unprofitable the business, the greater the present value of the going concern; and, if the business had yielded large profits from its very inception, the going business today would be worthless."

The objection is not without force, but it implies that the public, by its patronage, gives the enterprise its going value. Granting this assumption to be correct, it would seem that, in dealing with the charges exacted of the public for the services rendered, it would be manifestly unjust to enlarge the basis upon which to compute returns because of any increase in patronage without a corresponding increase of investment, and yet the logic of the objection necessarily leads to such result. But in considering profits as the criterion by which to determine the enhancement of value which should be allowed because of the utility's being a going concern, there results a confusion of the conception of going value with that of franchise value. The latter depends entirely upon profits; the former does not. The property may have a going value at the time of appraisement though it may not yet have reached a self-sustaining basis, but it certainly would have no appreciable franchise value under such circumstances. So, as between the public and the corporation or other proprietor, there should be no enlargement of capitalization for earning purposes for any reason other than because of actual investment necessarily and prudently sunk in building up the business under proper management.

Valuations under contracts of sale and in condemnation proceedings have frequently been made, and wherever the same have come before the courts for review and the question has been raised, it has been held that the property must be appraised as a going concern. In a recent case,[4] the supreme court of the United States, considering a contract of sale, said:

"The option to purchase excludes any value on account of unexpired franchises, but it did not limit the value to the bare bones of the plant, its physical property, such as its lands, its machinery, its water pipes, or settling reservoirs, nor to what

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[4] *Omaha v. Omaha Water Co.* 1910, 218 U. S. 180, 202.

it would take to reproduce each of its physical features. The value in equity and justice must include whatever is contributed by the fact of the connection of the items making a complete and operating plant. The difference between a dead plant and a live one is a real value, and is independent of any franchise to go on, or any mere good will as between such a plant and its customers. * * * That there is a difference between even the cost of duplication, less depreciation, of the elements making up the water company's plant, and the commercial value of the business as a going concern, is evident."

But in rate cases the contention is often made that a distinction should exist between a valuation for earning purposes and one for selling purposes. This may be true, should the sale be from one private person to another, but such sales are usually made to the public, and, hence, the reason advanced for such differentiation, as a rule of general application, has never appeared to me sound, and particularly so if the enhancement of value of the physical property, because of its being a going concern, is gauged by the actual amount necessarily invested in the enterprise and required to carry the property until it reached a paying basis. Why, on the one hand, the public should be compelled to pay the principal of such investment when it acquires the property, and yet, on the other hand, be exempted from paying interest thereon so long as it does not choose to purchase the same, has not yet been satisfactorily explained. If this element of value, however measured, arising out of the fact that the utility is a going concern, is property within the provision of the constitution inhibiting the taking of private property for public purposes without just compensation being first made to the owner thereof, it would necessarily follow from the holding of the courts that such property could not be denied earning capacity, for to deprive one of the right to earn upon private property devoted to a public service is equivalent to the confiscation of the property itself. It is safe to say that there is no authority in existence of controlling weight which sustains any such doctrine. Here and there an isolated dictum may be found indicating such view, but in the very few instances where the question has been a vital one in the case, the courts have adhered to the logic of the fundamental rulings of the supreme court of the United States.

Thus, in a recent rate case,[5] it is stated:

"An established railroad system may be worth more than its original cost and more than the mere cost of its physical reproduction. It has passed the initial period of little or no return to its owners, which, of greater or less duration, almost always follows construction and is not infrequently marked by default and bankruptcy. The inevitable errors in its building which finite minds and hands can not avoid, have been measurably corrected, time and effort have produced a commercial adjustment between it and the country it was intended to serve, relations have been established with patrons, and sources of traffic have been opened up and made tributary. In other words, the railroad, unlike one newly constructed, is fully equipped and is doing business as a going concern. It has attained a position after many experiences common to railroad enterprises which entail loss and costs not paid from current earnings, and which correspondingly make for value."

In another case[6] of like import, the court, after quoting at length from the case[7] of *Monongahela Navigation Co. v. United States*, proceeded as follows:

"It is true this was a condemnation proceeding, and the question was to determine what was just compensation for the appropriation of corporate property to a public use, while the case before this court relates to the fixing of water rates which shall be a just compensation for the appropriation of complainant's property to a public use. It is not perceived that there is any difference in the principles applicable to the two cases."

Again, in a leading case[8] recently decided by the supreme court of Oklahoma, Mr. Justice Hayes, speaking for the court, said:

"The uncontradicted evidence in this case discloses that appellant's plant for the years preceding the first hearing, failed to produce revenue sufficient for operating expenses, current repair, and lay aside an amount for depreciation. During the time of development there is a loss of money actually expended and of dividends upon the property invested. How shall this be taken care of? Must it be borne by the owner of the plant? Or by the initial customers? Or shall it be treated as part of the investment or value of the plant constituting the basis upon which charges shall be made to all customers who receive the benefits from the increased service rendering power

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[5] *Missouri, K. & T. Ry. Co. v. Love*, 1910, 177 Fed. 493.
[6] *Spring Valley Waterworks v. San Francisco*, 1903, 124 Fed. 574, 594.
[7] 148 U. S. 312.
[8] *Pioneer Tel. & Tel. Co. v. Westenhaver*, 1911, 118 Pac. (Okla.), 354.

of the plant by reason of these expenditures? It seems that the last solution is the logical, just and correct one. If rates were to be charged from the beginning so as to cover these expenditures and earn a dividend from the time a plant is first operated, the rate to the first consumers would be in many instances, if not in all, so exorbitant as to be prohibitive and would be so at the time when the plant could be of least service to them. On the other hand, the public cannot expect as a business proposition or demand as a legal right that this loss shall be borne by him who furnishes the service; for, investors in public service property make such investments for the return they will yield; and, if the law required that a portion of the investments shall never yield any return, but shall be a total loss to the investor, capital would unwillingly be placed into such class of investments; but the law in our opinion does not so require. Private property can no more be taken in this method for public use without compensation than by any other method. When the use of the property and the expenditures made during the non-expense paying and non-dividend paying period of the plant are treated as an element of the value of the property upon which fair returns shall be allowed, then the burden is distributed among those who receive the benefits of the expenditures and the use of the property in its enhanced value."

The modern rule on the subject as it may ultimately be established by controlling judicial authority is perhaps foreshadowed by Professor Wyman in his recent work[9] on Public Service Corporations. He states it concisely as follows:

"The physical connections of its plant, the cost of fitting it for its purpose, the loss of interest on the investment during construction and until the plant is in complete and lucrative operation, all add an actual value to the plant and are properly included in the construction account and form part of the actual capital employed in the enterprise."

MUNICIPAL PLANTS.

A distinctive feature of the law is that of placing all municipal plants under the supervisory powers of the Commission to the same extent as privately owned plants. The wisdom of this policy is no longer disputable, for no greater benefit has been bestowed upon the public by regulation of public utilities than that resulting from the operation of the law upon municipal

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[9] Vol. 2, sec. 1102. See also *Cumberland Tel. & Tel. Co. v. Louisville*, 1911, 187 Fed. 637; *Des Moines Water Co. v. Des Moines*, 1911, not yet reported in Federal Reporter.

public utilities. Under the law municipalities are obliged to keep their accounts according to the system prescribed by the Commission for all utilities, to report to the Commission in like manner as managers of privately owned plants, and to conform to all the rules, regulations and requirements of the Commission. No distinction is made between municipal plants and private plants in the matter of regulation. As a consequence of such uniform supervision, inestimable benefits have resulted to the public. These may be considered briefly under the heads of accounting, service, and cost of operation.

Accounting.

The system of accounting prescribed by the Commission has for its basic principle such classification as will enable the ascertainment of the cost of service. Although it is self-evident that no business of such character can be successfuly conducted without an accurate knowledge of the cost of rendering the service in which the utility is engaged, it was surprising to learn that while the best conducted privately owned utilities had in a measure recognized the importance of such information and had somewhat imperfectly attempted to ascertain the same, the majority of the managers of municipal plants had generally been wholly oblivious to the necessity of any such knowledge.

This lack of efficiency has been due partly to various causes, many of them beyond the control of the municipal utility plant. The first of these is the question of organization and responsibility. A part of the public utility function or department of city government is frequently administered by a superintendent, board of public works, engineer, board of commissioners, or committee of the common council, and it is frequently difficult to ascertain just where the duties of these individual city officials begin and end.

Again, the matter of rotation in office seriously interferes with continued efficient management. Executive rather than mere administrative ability is necessary in order to successfully conduct the utility plant, and it is to be regretted that the occasional good executive must be made the sacrifice to party policy.

Accounts pertaining to municipal plants were often merged with other accounts of municipalities, and even where separation was made the accounting was so crude and inaccurate that it was

impossible to ascertain therefrom even approximately the cost of any class of service. In this connection it may be said that the system of accounting prescribed by the Commission, although differing from that heretofore generally in vogue, has met with general approval among managers of privately owned plants, and those in charge of municipal plants who have endeavored to administer the affairs of the plant upon a sound business basis. In fact, a number of the larger plants throughout the country, as well as Canada, have voluntarily adopted the Wisconsin system of accounting.

Installation of a system of bookkeeping to conform with the prescribed accounts of the Commission has been necessarily a somewhat difficult task, especially in the case of municipal plants. Many of the smaller utilities which had hitherto evidently not seen the necessity of recording their transactions in a businesslike manner, have taken time to adjust their books to the accounting requirements.

The local authorities in control of municipal utilities were at first slow to respond to the demands of the Commission, except in the most progressive communities. In some instances it appeared that those in charge of such plants were apprehensive that proper methods of accounting might result in disclosures reflecting upon the capacity or integrity of the management. In other instances there seemed to be no one in the organization of employes capable of keeping a set of books intelligently. This was particularly true where the management changed with the municipal administration. However, in practically every community where the management was entrusted to a non-partisan board whose personnel was more or less permanent, there was no difficulty in securing hearty co-operation in putting into effect the prescribed system of accounting. Such boards were quick to recognize the benefits that would be derived from a uniform system of accounting. As the various plants are classified according to size, comparison of results of operation between plants in the same class has proven of inestimable value to the managements of all plants, whether publicly or privately owned. By studying the accounts of the various plants the Commission is enabled to become familiar with the details of operation of each plant, and to point out to the managements economies that may be adopted and improvements that may be made in the con-

duct of the business. It may be said that the more progressive managers examine the reports made to the Commission by the various utilities with the greatest care and scrutiny, for the purpose of ascertaining their own deficiencies of administration and learning a means of rectifying the same.

Service.

In the matter of the regulation of service, the work of the Commission has been most effective. Standards of service have been established to which every utility is required to conform strictly. To detect violations of the rules relating to service, the inspectors of the Commission are constantly traveling through the state making secret inspections. These rules differ materially from those in vogue in other states and countries. They place the responsibility for the character and quality of the service primarily upon the utility, which is required to test its own meters and make various other specific tests of the quality of the service prescribed in the rules and regulations, and also to keep a record of the results of all such tests, which must be kept open for public inspection. While the accuracy of meters is an essential element in the economic use of both gas and electricity, the maintenance of adequate pressures is more essential to the efficient use of either. Consequently, general systematic surveys of gas pressures and electric voltages by means of recording instruments are made. The gas inspectors are in their investigations required to test the quality and purity of gas, take records of pressure in various parts of the systems, supervise the testing of meters and calibrate the testing equipment. The electric inspectors take continuous records of voltage over the distribution systems, calibrate the companies' standard instruments and supervise the testing of consumers' meters and the renewal of incandescent lamps.

When the general survey of the service in the state was first made, it was found that few of the plants were able to comply with the prescribed standards without making alterations and improvements. Hundreds of thousands of dollars were spent by the different utilities in order to bring their equipment to the point where compliance with the rules of service was possible. Many of the managers of the municipal plants were reluctant to make the necessary changes in order to improve the quality of

their service; nevertheless, through persistent importuning and threats of prosecution on the part of the Commission, the necessary changes are being made gradually, and additional equipment installed where necessary.

There are forty gas plants in the state which are under the control of the Commission and subject to regular inspection. As a result of the improvement in the service, the heating value of gas has been increased from five to thirty per cent. The pressure has been rendered adequate. Without considering any change in rates for gas, but solely through the increase in heating value and pressure, the consumers of gas in the state are receiving from fifty thousand to seventy-five thousand dollars more annually in value of service than previously.

At the time that systematic inspection was undertaken, only about fifteen of the two hundred and fifty electric plants in the state, serving some fifteen thousand consumers, were giving reasonably satisfactory voltage. In order to comply with the requirements of the rules of service, about forty plants had to be generally overhauled and practically reconstructed. In the remaining plants it was necessary to install governors, automatic voltage regulators, and additional transformers, and also to make extensions and changes in the structure of the plants and distribution systems. Some of this work has not yet been completed and it may be stated that about fifty thousand consumers of electric current out of a total of seventy-five thousand are now receiving satisfactory electric service as measured by the prescribed standard. In this connection it must be borne in mind that the state regulation of voltage is new and that work similar to this in scope has never before been attempted. While the money-saving to the consumer resulting in an increase in the heating value of gas may be accurately estimated, the saving in electric current due to uniform adequate voltage is difficult of exact determination. For example, a foot of gas containing six hundred heating units will do twenty per cent more work than a cubic foot of gas having a heat value of five hundred heat units. Where voltage is defective, the increase of the voltage to meet the standard requirement increases the light correspondingly. This renders the service more satisfactory. There is, however, as a result of the improvement of service, according to the computation of the engineers of the Commission, a money-saving of

at least seventy-five thousand dollars annually to electric consumers.

About eighty per cent of the water works in the state of Wisconsin are municipal plants. Most of the activity of the Commission in respect to these has been directed to the testing of the quality of the water supply, the accuracy of meters and the sufficiency of pressures. Careful investigations are made of the character of fire streams and the adequacy of the systems to furnish necessary fire protection. It has been discovered that with the growth of the communities there has not always been a corresponding development of the water systems and enlargement of pumping stations, and as a result the plants become inefficient to render proper service. At times, discord in municipal councils over water works affairs has arisen and delayed making the necessary improvements required to meet the needs of the communities. In one of the larger cities of the state a controversy of twenty years' standing over the source of the water supply, which had been a polluted river, prevented necessary extensions of the distribution system being made and, in consequence, a large portion of the city was without adequate fire protection. A part of the community favored the installation of a filtration system, while the remainder contended that investigation should be made of the subterranean waters for the purpose of ascertaining whether a sufficient supply of permanently pure water of suitable quality could be found and, if so, that the river supply be abandoned and the water taken from wells. The water question was an issue in every municipal election, but neither faction could ever control a sufficient number of the members of the common council or of the voters to authorize a bond issue for carrying out their ideas. Finally, at the instigation of the mayor, twenty-five citizens filed with the Commission a petition against the city, praying for an order compelling the city to make the necessary improvements in the water works and to supply the citizens with pure, wholesome water. In the course of the investigation, an expert of the Commission caused to be sunk a number of test wells for the purpose of determining whether an adequate supply of suitable water could be obtained from subterranean sources. An excellent underground water supply was discovered at a point within easy access of the city which could be developed at a very moderate cost. Upon

the completion of the investigation, the Commission made its report wherein the city was ordered to take such steps as were necessary to develop the water supply discovered, reconstruct its plant and extend its system. Upon the receipt of the report of the Commission, the common council unanimously voted the necessary bond issue and placed the work in the hands of an engineer. It will not be long until this city will have an adequate water system supplying its inhabitants with one of the best waters that can be found anywhere.

The attitude of the Commission's engineering staff in dealing with those who are directly responsible for the operation of the various utility properties about the state might perhaps be supposed to be that of the more or less confirmed critic, but the fact is that pointed criticism and even drastic treatment is made use of only where the circumstances call for such action. It may be stated, as a general proposition, that the relation between the Commission's inspection staff and the plant operators is, almost without exception, one of mutual assistance and satisfaction.

The process is distinctly cumulative in its efficiency and helpfulness. The inspectors are chosen with particular reference to their qualifications in operating matters, and are given an opportunity to observe and analyze the routine problems of the plant operator under a wide range of actual conditions. Moreover, the special training ground of the Commission's staff is not restricted to the limitations of a single state, for the reason that to a certain extent it has been found practicable to respond to an ever-increasing demand from other states by releasing individual members of the staff for brief intervals of time for service in attacking similar problems which are continually arising throughout the country. The men engaged in this so-called missionary work necessarily acquire added impetus and enthusiasm in resuming their duties on the Wisconsin staff.

It goes without saying that the owners of small utility properties, either municipal or private, rarely make provision on their own account for expert advice for the guidance of their employes in direct charge of plant operation; and even in the comparatively few instances where the owners of small plants do independently employ expert advice, the professional service is of a non-continuous character and, unfortunately, does not al-

ways escape the commercial taint. It will, of course, be agreed that professional advice wisely purchased should be paid for as a legitimate operating expense by those who are directly benefited, viz., the purchasers of the service rendered by the plant. Whether the expense involved in providing continuous professional service along the lines practiced in Wisconsin should be paid for directly as a local operating expense, or indirectly through a technical staff controlled by the state commission, is believed to be a matter of great practical importance. In Wisconsin, it is interesting to note, the use of a state technical staff, having a state-wide range, has led to an extensive increase in the intelligent and efficient use of high grade professional advice employed independently, and usually voluntarily, for the purpose of increasing operating efficiency along lines suggested by the enforcement of the Commission's standards for adequate service.

Cost of Operation.

The question is frequently raised as to how far the decisions and orders of the Commission have improved efficiency of operation and effected savings to the utility plant. While it is always difficult to make estimates of this character and to localize the responsibility for such savings, it is safe to say that the tendency of the regulation has been in the direction of encouraging greater efficiency and of rewarding the efforts of the utilities interested in effecting such savings.

To begin with, the necessity for public cost-keeping has led of necessity to closer scrutiny of operating expenses. Extravagant salaries, excessive expenses for promoting new business, etc., are not willingly included in the type of detailed operating expense exhibits required by the Commission where there is the probability that such an exhibit will be reviewed by the banker, the stockholder and the consumer. The provisions that stores and supplies must be separately accounted for until they are actually used in the operation or construction of the plant, and the additional provision that labor costs be subdivided over the separate duties performed, have prevented many losses which of their nature could not have been detected with a less comprehensive system of accounts.

Likewise, the adoption of more scientific rate schedules has

improved operating conditions by encouraging the long-hour user, thus enabling a better use of the plant investment. Nowhere has this been more apparent than in the case of municipal utilities. Unproductive labor costs and losses due to the necessity of holding the plant in readiness to serve the consumers have been reduced, the cost per unit of output has been lessened and a further reduction in rates has thus been made possible. This work of adjusting schedules to the requirements of industries yielding increasing returns is showing substantial results. Utilities throughout the state are beginning to recognize that a reduction in rates may lead to an increased return under a schedule which will develop the plant to its full capacity, and it is becoming customary for managers of plants to come to the Commission asking for "the kind of schedule which will develop the business."

Similarly, the work of service inspection has frequently led to suggestions of a rearrangement of the plant, especially the distribution system equipment. These suggestions, it is noted, have often resulted in the reduction of the amount of gas, electricity and water lost and unaccounted for, and have, consequently, effected a substantial saving.

Perhaps the greatest economies have been brought about by the insistence on the part of the Commission that services be metered wherever possible. The rate for unmetered service generally leads to abuse of the service; rates must be made correspondingly higher to offset the possibility of an occasional extravagant customer, and as a result there can be no incentive to economize.

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In conclusion, it may be said that intelligent regulation of public utilities requires engineering, accounting and statistical skill of a high order. Those entrusted with the work of investigation and study of the various subjects presented for consideration must have scientific knowledge in the respective branches or departments of utility management and operation. With a competent staff of experts in the different lines of service engaged constantly in examining plants throughout a state, it is possible for the regulating board to bring to the solution of every problem arising a breadth of vision and experience that is invaluable both to the public and to the utility. No regulation can be effective which is not based upon accurate information

and which is not actuated by a sense of justice and equity. In the light of the past it must be conceded that an independent tribunal, free from local influences and prejudices, and assisted by a corps of trained experts, is better qualified to efficiently regulate public service corporations and individuals engaged in public services than any municipal council. There is also economy in central control. One body can serve all municipalities as well as one municipality, and serve them better. Besides, the cost of the necessary organization of experts to deal with the matter would be prohibitive to most municipalities.

The Public Utilities Law of Wisconsin was enacted with a view of placing public utilities upon a sound economic basis and eliminating all unnecessary friction between the public and such concerns due to causes arising from ignorance of the economic status of public utilities and their moral and legal relations to the public. After four years administration of the law, the results obtained from its operation have been generally satisfactory. Experience in Wisconsin seems to indicate that public regulation may prove advantageous to the business interests of utilities as well as to the general interests of the public.